

**Supplementary Table S1.** Hierarchical linear regression (HLS) model outputs for each fine root diameter class dependent variables (live root length, live root biomass, dead root length, necromass, and live specific root length). Sampled tree and soil core were used as grouping levels.

Variables	Root diameter (mm)		
	Class 1 0–0.3	Class 2 0.3–1.0	Class 3 1.0–2.0
<b>Live length</b>			
Cook's distance MAX	0.044	0.048	0.056
STD residual MIN	-3.38	-3.53	-3.59
STD residual MAX	2.44	2.24	1.46
R squared	0.151	0.128	0.137
R squared change	0.150	0.123	0.135
% R squared variation	0.66	3.91	1.46
<b>Live biomass</b>			
Cook's distance MAX	0.022	0.027	0.028
STD residual MIN	-2.63	-2.24	-2.62
STD residual MAX	2.95	3.17	3.23
R squared	0.187	0.193	0.238
R squared change	0.184	0.189	0.236
% R squared variation	1.60	2.07	0.84
<b>Dead length</b>			
Cook's distance MAX	0.039	0.031	0.051
STD residual MIN	-3.51	-3.32	-3.13
STD residual MAX	2.08	2.12	1.83
R squared	0.231	0.195	0.101
R squared change	0.227	0.191	0.097
% R squared variation	1.73	2.05	3.96
<b>Necromass</b>			
Cook's distance MAX	0.046	0.020	0.020
STD residual MIN	-2.45	-2.54	-3.64
STD residual MAX	3.86	3.23	3.67
R squared	0.141	0.135	0.087

R squared change	0.139	0.133	0.08
% R squared variation	1.42	1.48	2.30
<b>Specific root length</b>			
Cook's distance MAX	0.039	0.038	0.038
STD residual MIN	-3.74	-2.97	-3.89
STD residual MAX	3.73	3.28	2.74
R squared	0.090	0.064	0.035
R squared change	0.089	0.060	0.033
% R squared variation	1.11	6.25	5.71

**Supplementary Table S2.** Mean ( $\pm$  standard error) values for root traits by diameter class (C1: 0–0.3; C2: 0.3–1.0; C3: 1.0–2.0 mm; and all root classes combined: 0–2.0 mm) and soil depth. Mean values in **bold** within each root trait  $\times$  soil depth combination represent significant differences (LSD tests) between control (C; n=40) and fire-affected (F; n=30) trees;  $p = p$  value.

Diameter class	Soil depth (cm)	Standing biomass ( $\text{g}\cdot\text{m}^{-2}$ )			Standing necromass ( $\text{g}\cdot\text{m}^{-2}$ )			Live length ( $\text{m}\cdot\text{m}^{-2}$ )			Dead length ( $\text{m}\cdot\text{m}^{-2}$ )		
		C	F	<i>p</i>	C	F	<i>p</i>	C	F	<i>p</i>	C	F	<i>p</i>
0–0.3	0–10	<b>13.5</b> $\pm 1.0$	<b>8.0</b> $\pm 0.7$	<b>&lt;0.001</b>	<b>0.23</b> $\pm 0.05$	<b>0.58</b> $\pm 0.12$	<b>&lt;0.001</b>	<b>1267</b> $\pm 110$	<b>706</b> $\pm 65$	<b>&lt;0.001</b>	<b>20.2</b> $\pm 4.4$	<b>50.0</b> $\pm 9.6$	<b>&lt;0.001</b>
	10–20	<b>8.4</b> $\pm 0.6$	<b>6.6</b> $\pm 0.4$	<b>0.048</b>	<b>0.11</b> $\pm 0.02$	<b>0.29</b> $\pm 0.06$	<b>0.036</b>	<b>760</b> $\pm 59$	<b>549</b> $\pm 37$	<b>0.025</b>	<b>10.0</b> $\pm 1.7$	<b>25.8</b> $\pm 5.2$	<b>0.032</b>
	20–30	6.3 $\pm 0.5$	7.6 $\pm 0.6$	0.208	<b>0.07</b> $\pm 0.02$	<b>0.27</b> $\pm 0.07$	<b>0.042</b>	565 $\pm 44$	654 $\pm 58$	0.862	<b>6.7</b> $\pm 1.8$	<b>23.0</b> $\pm 5.9$	<b>0.035</b>
0.3–1.0	0–10	<b>74.4</b> $\pm 5.1$	<b>58.6</b> $\pm 5.4$	<b>0.011</b>	<b>5.5</b> $\pm 0.7$	<b>13.2</b> $\pm 1.8$	<b>&lt;0.001</b>	<b>805</b> $\pm 60$	<b>606</b> $\pm 55$	<b>0.003</b>	<b>39.0</b> $\pm 5.3$	<b>100.1</b> $\pm 15.6$	<b>&lt;0.001</b>
	10–20	55.2 $\pm 3.3$	66.9 $\pm 5.2$	0.061	<b>5.6</b> $\pm 0.8$	<b>11.2</b> $\pm 1.5$	<b>0.001</b>	553 $\pm 34$	657 $\pm 53$	0.115	<b>35.0</b> $\pm 4.9$	<b>77.5</b> $\pm 12.0$	<b>0.001</b>
	20–30	<b>35.4</b> $\pm 2.6$	<b>58.5</b> $\pm 4.0$	<b>&lt;0.001</b>	<b>2.8</b> $\pm 0.6$	<b>7.6</b> $\pm 1.2$	<b>0.005</b>	<b>363</b> $\pm 26$	<b>587</b> $\pm 41$	<b>0.001</b>	<b>18.3</b> $\pm 3.3$	<b>57.7</b> $\pm 11.0$	<b>0.005</b>
1.0–2.0	0–10	33.9 $\pm 3.5$	38.4 $\pm 4.4$	0.439	<b>7.0</b> $\pm 1.3$	<b>13.4</b> $\pm 2.3$	<b>0.002</b>	41.4 $\pm 4.3$	43.5 $\pm 4.8$	0.746	<b>8.8</b> $\pm 1.6$	<b>15.0</b> $\pm 2.4$	<b>0.007</b>
	10–20	47.0 $\pm 4.1$	42.1 $\pm 4.3$	0.394	8.1 $\pm 1.3$	10.3 $\pm 1.4$	0.267	49.9 $\pm 4.0$	48.4 $\pm 4.7$	0.815	9.6 $\pm 1.4$	12.2 $\pm 1.5$	0.239
	20–30	34.2 $\pm 3.9$	36.1 $\pm 4.5$	0.750	5.1 $\pm 0.9$	6.6 $\pm 1.1$	0.455	37.3 $\pm 4.3$	42.0 $\pm 5.2$	0.462	6.1 $\pm 1.2$	8.4 $\pm 1.3$	0.334
0–2.0	0–30	317 $\pm 21$	341 $\pm 39$	0.785	<b>32.8</b> $\pm 6.0$	<b>55.9</b> $\pm 12.6$	<b>0.002</b>	4337 $\pm 210$	3915 $\pm 216$	0.165	<b>138</b> $\pm 15$	<b>288</b> $\pm 40$	<b>&lt;0.001</b>

**Supplementary Table S3.** Mean ( $\pm$  standard error) values for root traits by diameter class (C1: 0–0.3; C2: 0.3–1.0; C3: 1.0–2.0 mm; and all root classes combined: 0–2.0 mm) and soil depth. Mean values in **bold** within each root trait  $\times$  soil depth combination represent significant differences (LSD tests) between control (C; n=40) and fire-affected (F; n=30) trees;  $p = p$  value. Production values determined with decision matrix method. Turnover rate is the quotient of annual production and maximum standing biomass.

Diameter class	Soil depth (cm)	Specific root length ( $\text{m}\cdot\text{g}^{-1}$ )			Live/dead mass			Production ( $\text{g}\cdot\text{m}^{-2}$ )			Turnover rate		
		C	F	<i>p</i>	C	F	<i>p</i>	C	F	<i>p</i>	C	F	<i>p</i>
0–0.3	0–10	<b>92.5</b> $\pm 1.5$	<b>87.7</b> $\pm 1.3$	<b>0.003</b>	<b>81.1</b> $\pm 17.7$	<b>15.8</b> $\pm 4.2$	<b>0.003</b>	9.6 $\pm 2.1$	9.0 $\pm 0.6$	0.788	<b>0.51</b> $\pm 0.07$	<b>0.74</b> $\pm 0.04$	<b>0.015</b>
	10–20	<b>89.9</b> $\pm 1.1$	<b>83.9</b> $\pm 0.9$	<b>&lt;0.001</b>	<b>83.4</b> $\pm 13.3$	<b>35.1</b> $\pm 15.3$	<b>0.032</b>	7.5 $\pm 1.9$	7.2 $\pm 2.1$	0.913	0.58 $\pm 0.11$	0.66 $\pm 0.11$	0.609
	20–30	<b>89.1</b> $\pm 0.9$	<b>85.9</b> $\pm 1.1$	<b>0.039</b>	<b>101.6</b> $\pm 19.1$	<b>45.7</b> $\pm 15.9$	<b>0.044</b>	9.4 $\pm 2.2$	12.0 $\pm 1.8$	0.381	0.85 $\pm 0.12$	0.90 $\pm 0.13$	0.781
0.3–1.0	0–10	10.9 $\pm 0.2$	10.6 $\pm 0.2$	0.245	<b>16.0</b> $\pm 3.7$	<b>5.2</b> $\pm 1.5$	<b>0.016</b>	95.5 $\pm 13.3$	79.9 $\pm 7.2$	0.328	0.85 $\pm 0.08$	0.93 $\pm 0.10$	0.558
	10–20	10.2 $\pm 0.2$	9.8 $\pm 0.2$	0.244	10.5 $\pm 2.0$	8.2 $\pm 2.8$	0.533	56.0 $\pm 8.5$	97.6 $\pm 28.4$	0.191	0.77 $\pm 0.13$	0.80 $\pm 0.14$	0.891
	20–30	10.5 $\pm 0.2$	10.2 $\pm 0.2$	0.346	14.5 $\pm 2.8$	9.4 $\pm 1.2$	0.103	59.3 $\pm 10.0$	75.0 $\pm 16.3$	0.433	1.04 $\pm 0.14$	0.79 $\pm 0.11$	0.186
1.0–2.0	0–10	1.29 $\pm 0.04$	1.21 $\pm 0.04$	0.090	4.7 $\pm 1.4$	4.4 $\pm 1.6$	0.882	76.3 $\pm 12.6$	72.4 $\pm 9.0$	0.806	1.35 $\pm 0.10$	1.26 $\pm 0.21$	0.777
	10–20	1.15 $\pm 0.03$	1.24 $\pm 0.03$	0.101	9.4 $\pm 2.8$	5.6 $\pm 1.8$	0.269	64.9 $\pm 11.7$	100.6 $\pm 25.4$	0.221	0.81 $\pm 0.10$	1.40 $\pm 0.31$	0.095
	20–30	1.21 $\pm 0.04$	1.24 $\pm 0.03$	0.331	11.2 $\pm 3.7$	6.7 $\pm 1.1$	0.265	66.8 $\pm 9.8$	89.1 $\pm 15.2$	0.244	1.14 $\pm 0.08$	1.33 $\pm 0.09$	0.145
0–2.0	0–30	14.3 $\pm 0.6$	12.7 $\pm 0.6$	0.203	5.3 $\pm 1.4$	2.9 $\pm 1.0$	0.428	444.4 $\pm 36.5$	542.8 $\pm 67.7$	0.305	1.07 $\pm 0.07$	1.29 $\pm 0.11$	0.106